



Acheson & Glover

64 Old Moy Road
Dungannon
Co Tyrone BT71 6PU

Tel: 028 8778 4208 Fax: 028 8778 4805
e-mail: novabriksales@acheson-glover.com
website: www.acheson-glover.com/www.novabrik.com

**Agrément
Certificate
No 07/4421**

Designated by Government
to issue
European Technical
Approvals

NOVABRIK MORTARLESS BRICK SYSTEM

Parement extérieur
Verkleidung Bedachung

Product



• THIS CERTIFICATE RELATES TO THE NOVABRIK MORTARLESS BRICK SYSTEM, A NON-STRUCTURAL CLADDING SYSTEM FOR INTERNAL OR EXTERNAL USE.

• The system comprises interlocking concrete profiled bricks, screw fixed to timber battens or galvanized steel framework. They are suitable for use on new or existing timber-frame, or steel-frame buildings and on masonry and concrete backgrounds, including dense or no-fines concrete constructions.

Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)



The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of cladding systems with the Building Regulations. In the opinion of the BBA, the Novabrik Mortarless Brick System, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: A1	Loading
Comment:	The system is acceptable for use when installed in accordance with this Certificate. See sections 7.2 to 7.5 and 8.1 to 8.5 of this Certificate.
Requirement: B2(1)	Internal fire spread (linings)
Requirement: B3(3)(4)	Internal fire spread (structure)
Requirement: B4(1)	External fire spread
Comment:	The system is non-combustible and therefore can meet these Requirements. See section 9 of this Certificate.
Requirement: C2(b)(c)	Resistance to moisture
Comment:	Walls clad with the system can meet this Requirement. See sections 11.1, 11.2 and 12 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The system is acceptable. See section 14 of this Certificate.

continued

continued

- Application and maintenance must be carried out strictly in accordance with the Design Data and Installation parts of this Certificate and the Certificate holder's instructions.
- The system is the subject of a patent held by Novabrik International Inc, who has licensed the Certificate holder to manufacture and market the product in the UK and Ireland.

2 The Building (Scotland) Regulations 2004 (as amended)



In the opinion of the BBA, the Novabrik Mortarless Brick System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

Regulation:	8	Fitness and durability of materials and workmanship
Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See section 14 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	1.1(a)(b)	Structure
Comment:		The system can contribute to a construction satisfying this Standard, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See sections 7.2 to 7.5 and 8.1 to 8.5 of this Certificate.
Standard:	2.1	Compartmentation
Comment:		The system can contribute to satisfying this Standard, with reference to clause 2.1.16 ⁽²⁾ . See section 9 of this Certificate.
Standard:	2.2	Separation
Comment:		The system can contribute to satisfying this Standard, with reference to clause 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ . See section 9 of this Certificate.
Standard:	2.4	Cavities
Comment:		The system can contribute to satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.3 ⁽²⁾ , 2.4.7 ⁽¹⁾ and 2.4.9 ⁽²⁾ . See section 9 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The system is non-combustible and so is unrestricted by this Standard, with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system is 'non-combustible' and is therefore unrestricted under this Standard, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 9 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The system is non-combustible and is therefore unrestricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard:	3.10	Precipitation
Comment:		When installed in accordance with this Certificate, the system can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.5 ⁽¹⁾⁽²⁾ and 3.10.6 ⁽¹⁾⁽²⁾ . See sections 11.1 and 11.2 of this Certificate.
Standard:	3.15	Condensation
Comment:		When installed in accordance with this Certificate, the system can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ and 3.15.4 ⁽¹⁾ . See section 12 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for this system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

3 The Building Regulations (Northern Ireland) 2000 (as amended)



In the opinion of the BBA, the Novabrik Mortarless Brick System, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 14 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		Walls clad with the system can satisfy this Regulation. See sections 11.1 and 11.2 of this Certificate.
Regulation:	C5	Condensation
Comment:		Walls clad with the product can contribute to satisfying this Regulation. See section 12 of this Certificate.
Regulation:	D1	Stability
Comment:		The system is acceptable for use when installed in accordance with this Certificate. See sections 7.2 to 7.5 and 8.1 to 8.5 of this Certificate.

Regulation:	E3	Internal fire spread — Linings
Regulation:	E4	Internal fire spread — Structure
Regulation:	E5	External fire spread
Comment:	The system is non-combustible and can satisfy these Regulations. See section 9 of this Certificate.	

4 Construction (Design and Management) Regulations 2007 Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, CDM co-ordinator or planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 5 Description (5.3) and 6 Delivery and site storage (6.1).

Technical Specification

5 Description

5.1 The Novabrik Mortarless Brick System provides non-structural cladding for external walls, or as a feature lining to internal walls.

5.2 The system consists of interlocking concrete profiled bricks, fixed to preservative-treated timber battens or galvanized steel framework (see Figure 1).

5.3 The nominal characteristics of the standard Novabrik units are given in Table 1.

Dimension (mm) ⁽¹⁾			Unit weight kg	Compressive strength at 28 days (Nmm ⁻²)
Length	Height	Depth		
200	149	65	2.1	25
200	200	65	2.7	25

(1) The product is also available in imperial dimensions, to special order.

5.4 In addition to the standard units, inside and outside corner blocks and other accessories are also available (see Figure 1).

5.5 The system is available in smooth, split and textured finishes, in the following standard colour range⁽¹⁾:

- Annadale
- Basalt
- Classico
- Country Cream
- Dark Brown
- Francesco
- Glenvale
- Olde Cottage
- Olde Forge
- Olde Inish
- Olde Russet
- Olde Sunset
- Sahara

(1) Other colours are available to special order.

5.6 Ancillary materials used during installation include:

- PVC-U starter track for levelling and positioning the first course of product
- galvanized steel framework in minimum DX51D + Z275 or DX54D + Z275 to BS EN 10327 : 2004 or S350GD + Z275 to BS EN 10326 : 2004

- Concrete Construction Adhesive — a one-part polyurethane adhesive for fixing cut Novabrik slips around details and for bonding horizontal faces of successive corner units

- M5 x 70 mm fixings (see section 5.7)⁽¹⁾

(1) The fixing of battens/framework to the substrate is outside the scope of this Certificate (see section 16).

5.7 The system is installed using corrosion-resistant fixings. Galvanized steel products are normally used, but stainless steel should be specified for coastal locations (less than 5 km from the sea). The Certificate holder should be consulted to determine suitable fixings.

5.8 Quality control is exercised over the raw materials used, during the manufacturing process and on the final products.

6 Delivery and site handling

6.1 The system is delivered on pallets measuring 1080 mm by 960 mm. For the 149 mm high Novabriks, the pallet contains 640 Novabriks and weighs 1300 kg and for the 200 mm high Novabriks, contains 512 Novabriks and weighs 1400 kg. The system is baled and covered with polythene sheeting.

6.2 Pallets should be stored on a flat, accessible space and protected from damage.

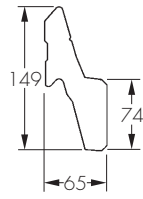
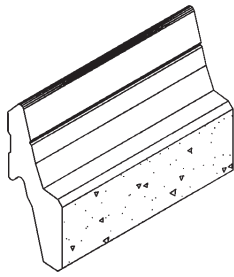
6.3 Each pallet bears the Novabrik logo, Certificate holder's name, the colour and the date of production.

Design Data

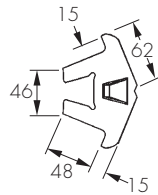
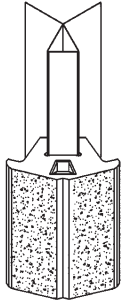
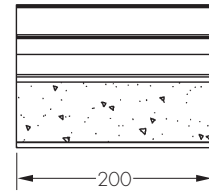
7 General

7.1 The Novabrik Mortarless Brick System is a cladding suitable for internal or external fixing to timber-frame or steel-frame buildings and on masonry and concrete backgrounds, including dense and no-fines concrete constructions up to 18 m in height. The system is fixed to vertical timber battens or galvanized steel channels spaced at up to 600 mm centres.

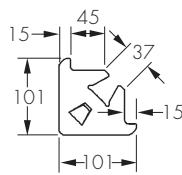
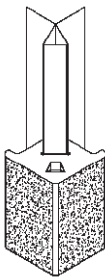
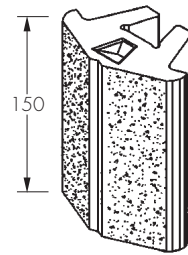
Figure 1 Products and dimensions (all dimensions in mm)



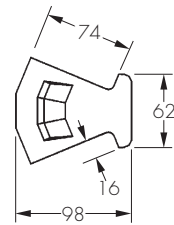
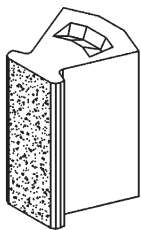
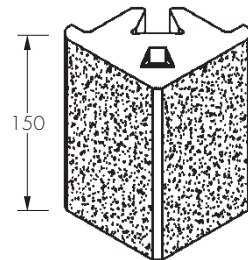
Novabrik



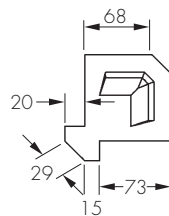
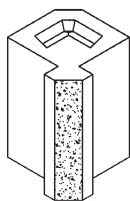
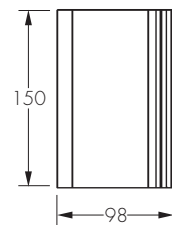
45° outside angle



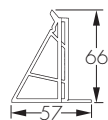
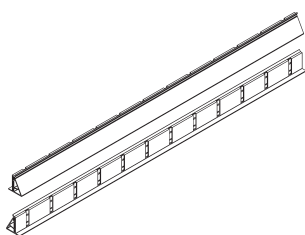
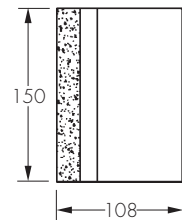
90° outside angle



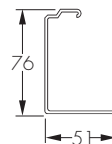
45° inside angle



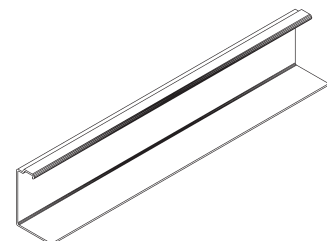
90° inside angle



PVC-U starter track



Novabrik reveal trim





7.2 The wall or sub-frame to which the cladding is fixed should be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards (see sections 7.3 to 7.5).

7.3 Masonry or concrete to which the support work and cladding are fixed should be structurally sound and have been constructed in accordance with one or more of the following technical specifications:

- BS 5628-1 : 2005 and BS 5628-3 : 2005
- BS 8110-1 : 1997 and BS 8110-2 : 1985
- the national Building Regulations:

England and Wales

Approved Document A1/2, Section 2C

Scotland

Mandatory Standard 1.1, clause 1.1.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland

Technical Booklet D.

7.4 Timber stud walls and timber support work should be structurally sound and have been designed and constructed in accordance with BS 5268-2 : 2002 and preservative treated in accordance with BS 5268-5 : 1989, BS 5589 : 1989 and BS EN 351-1 : 1996.

7.5 Galvanized steel framework should be structurally sound and designed and constructed in accordance with BS 5950-5 : 1998.

7.6 The system may be installed over external wall insulation, but specific insulation materials are outside the scope of this Certificate.

8 Strength and stability



8.1 When installed in accordance with the requirements of this Certificate and the Certificate holder's instructions, the system will withstand, without damage or permanent deformation, the pressures imposed by wind forces likely to be experienced in the United Kingdom.

8.2 The wall and sub-frame to which the system is fixed should be structurally sound and constructed in accordance with sections 7.3 to 7.5. In common with other cladding, the Novabrik can provide increased rigidity to conventional timber- and steel-frame buildings. However, when designing the wall for strength, stability and racking, no contribution from the cladding should be assumed.

8.3 Wind loads should be calculated in accordance with BS EN 1991-1-4 : 2005 and BS 6399-2 : 1997. The higher pressure coefficients applicable to corners of buildings should be used.

8.4 The system is capable of transmitting its self-weight and wind load to the structure. The adequacy of fixing of the sub-frame to the structural frame or substrate for specific installations is outside the scope of this Certificate and must be verified by a suitably qualified engineer (see section 16). Particular care is required around window and door openings to ensure that the structure is capable of sustaining the additional weight of the Novabrik.

8.5 The sub-frame to which the system is fixed should be designed to limit mid-span deflections to L/200 and cantilever deflections to L/150.

8.6 The system has good resistance to abrasion and the impacts likely to occur in practice and is satisfactory for use in locations described in categories B to F of BS 8200 : 1985.

9 Properties in relation to fire



The system is classified as non-combustible as described in the national Building Regulations:

England and Wales

Approved Document B, Table A6

Scotland

Regulation 9, Annex 2C⁽¹⁾ or 2E⁽²⁾, Table

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland

Technical Booklet E, Paragraph 6.4.

10 Proximity of flues

When installing the system in close proximity to certain flue pipes, the following provisions of the national Building Regulations should be met:

England and Wales

Approved Document J

Scotland

Mandatory Standard 3.19, clauses 3.19.1⁽¹⁾⁽²⁾ to 3.19.4⁽¹⁾⁽²⁾ and 3.19.8⁽¹⁾⁽²⁾.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland

Technical Booklet L.

11 Air and moisture penetration



11.1 When installed in accordance with this Certificate, the system is not airtight but has good resistance to the passage of rain and snow.

11.2 When used over timber- or steel-frame buildings, or any other sound substrate not known to be watertight, a breather membrane must be incorporated behind the cladding, under the supporting battens.

12 Risk of interstitial condensation



The relevant components of the system have a water vapour resistance such that, under the conditions likely to be found in dwellings in the United Kingdom, interstitial condensation should not occur.

13 Maintenance

Regular maintenance inspections followed by appropriate remedial action should be made on the installed system. Where damage has occurred, advice should be sought from the Certificate holder.

14 Durability



The system is manufactured from durable materials and when installed, inspected and maintained in accordance with the provisions of this Certificate, is capable of achieving a design life of at least 60 years.

Installation

15 General

15.1 The Novabrik Mortarless Brick System must be installed strictly in accordance with the Certificate holder's instructions and this Certificate.

15.2 In common with traditional brickwork, some colour variation may exist between pallets. Therefore, each course of Novabrik should be made up from a selected number of pallets, to achieve a consistent appearance across any given elevation.

15.3 Substrates should be of sound timber-frame, steel-frame, masonry or dense concrete backgrounds, including dense or no-fines concrete constructions.

16 Site survey and preliminary work

16.1 A pre-installation survey should be carried out to determine suitability of the building for installation and any repairs that will be necessary prior to installation of the system. A specification should be prepared for each elevation of the building, including:

- detailing around windows, doors and at eaves
- areas where flexible sealants will be required
- any alterations to external plumbing
- the positions of fire barriers (where required)
- pull-out strength of the fixings used to secure the battens to the structure (where considered necessary by the supervising engineer).

16.2 The design of each installation must be checked by a suitably qualified engineer (or similarly competent person) who will need to take into account the nature and quality of the substrate, the location, the supporting structure and fixings. In the absence of a formal requirement a safety factor of 3 should be used.

16.3 When a breather membrane is required it should be installed and properly overlapped in accordance with the instructions of the membrane manufacturer and the building designer.

16.4 Minimum 19 mm by 75 mm preservative treated timber or galvanized steel battens are installed vertically (to align with existing timber/steel studs where appropriate) at maximum 600 mm intervals strictly in accordance with the Certificate holder's instructions. Larger battens may be used to suit the requirements of the installation.

16.5 On existing building, purpose-made sills must be fitted to extend beyond the finished face of the system. New buildings should incorporate suitably deep sills.

16.6 It is recommended that external plumbing be removed and alterations made to underground drainage, where appropriate, to accommodate repositioning on the finished face of existing buildings.

16.7 Additional framework is installed at corners and around features such as windows to allow for the installation of corner fittings and other detailing (see sections 17.9 to 17.11).

16.8 All window and door openings should be sealed strictly in accordance with the Certificate holder's installation instructions to ensure they are weathertight.

17 Procedure

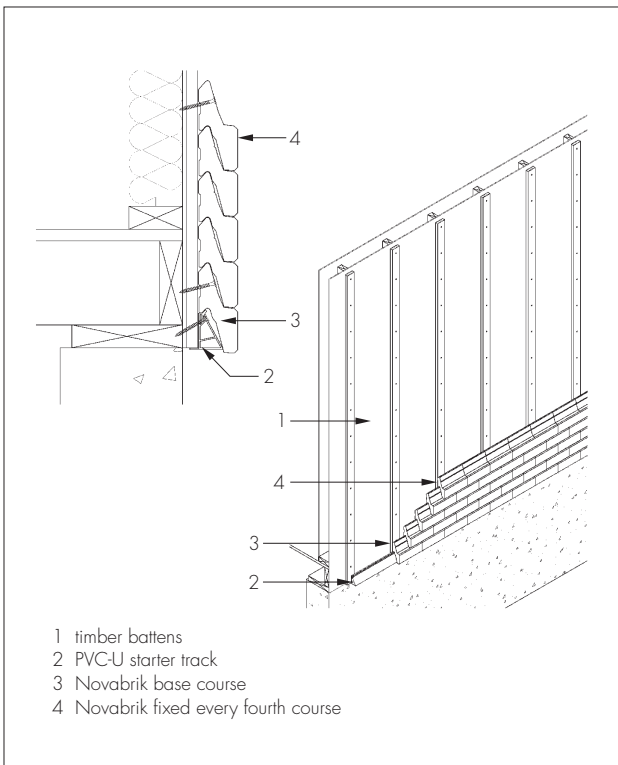
17.1 The starter track is positioned and levelled horizontally at the bottom of the run and secured to each batten with corrosion-resistant screws.

17.2 For installation on timber-frame buildings, all fixings must penetrate through the starter rail/Novabrik to a minimum depth of 32 mm into the batten/stud. For masonry/steel frame substrates, the thickness of the timber battens should be sufficient to accommodate this depth of fixing.

17.3 The rebate in the rear of the Novabrik is located on the top edge of the starter track. The bottom course is installed ensuring each Novabrik is tightly butted to the adjoining Novabrik. At each batten, the Novabrik is drilled at a 30° angle and secured through the brick into the batten. The fixings should be tightened until the head touches the face of the Novabrik. Overtightening should be avoided.

17.4 Successive courses are placed on top of the first, staggered by one half-brick width, and tapped in place (see Figure 2). A rubber mallet and wood straight edge should be used to set the bricks in place. All adjustments must be made prior to securing the Novabrik in place. Regular checks should be made to ensure that the run remains straight and level.

Figure 2 Installation



17.5 All dirt and dust should be removed from each course using a hand brush before the next course is installed.

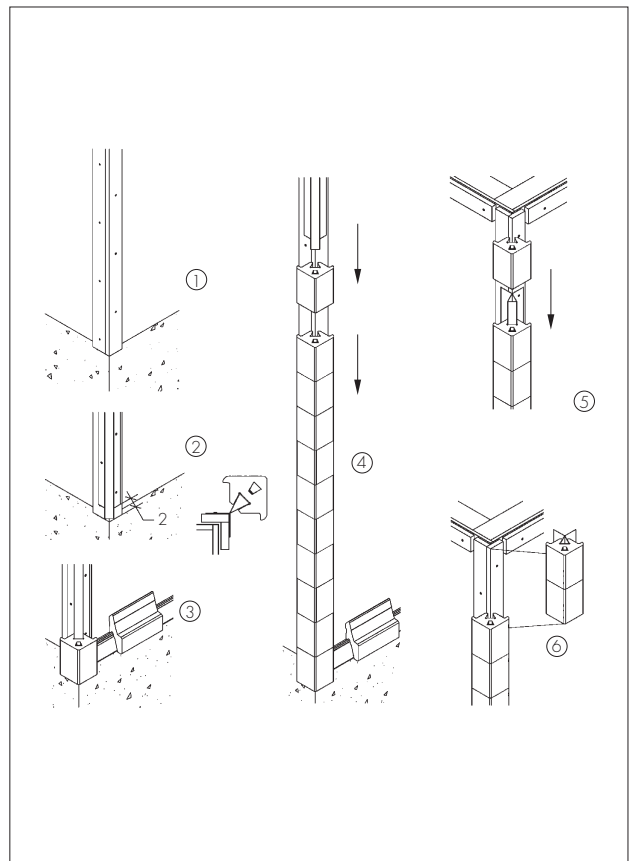
17.6 Units can be cut to length as required to complete courses or around details using circular/chop saws or masonry saws.

17.7 For every fourth course, additional fixing of the product is required to coincide with each of the battens as described in section 17.3. The final course is also secured in this way.

17.8 It is necessary to cut and bond slips to complete the top edge of the installation, using Concrete Construction Adhesive. Each slip should also be mechanically secured in place using the same fixings and techniques as for the standard product. The head of the fixings should be countersunk and concealed using a suitable coloured sealant.

17.9 Outside corners are installed by first fixing the appropriate corner track in place. The corner units are then slid down the track and aligned with the bottom course of the system (see Figure 3). The corners are tapped down and screwed securely in place using the appropriate fixing. A track of Concrete Construction Adhesive is applied to the top of each unit prior to fitting the next, to bond the units together.

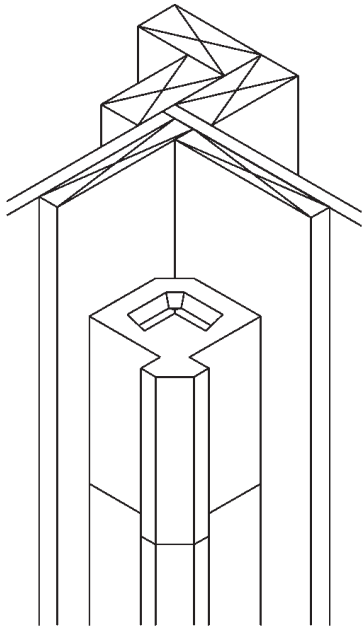
Figure 3 Outside corner installation



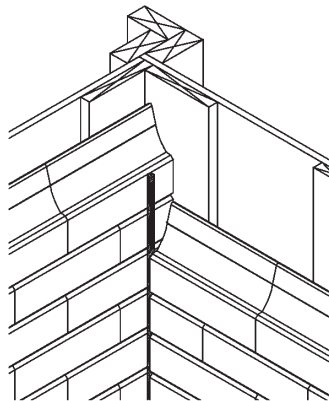
17.10 Inside corners are formed either by using an inside corner block or by overlapping the Novabrik (see Figure 4) using one of the following procedures:

- two timber boards 140 mm wide and the same depth as the battens are fixed on each face at the internal corner. The inside corner block is pre-drilled at a 30° downward angle and is fixed directly to the boards using the appropriate fixing. A track of Concrete Construction Adhesive is applied to the top of each unit prior to fitting the next, to bond the units together (see Figure 4a)
- two timber boards 140 mm wide and the same depth as the battens are fixed on each face of the wall at the internal corner. A waterproof membrane is installed between the boards and the substrate. The Novabrik is installed on one face of the wall all the way up to the corner. The Novabrik is then installed on the other wall leaving a 10 mm gap. The gap is filled with a foam backing rod and the gap is sealed using a suitable sealant (see Figure 4b).

Figure 4 Inside corner installation



(a) using 45° and 90° inside corner blocks



(b) overlapping brick method

17.11 Particular care is required when planning and installing the product around window/door openings. These are completed using Novabrik reveal trim or corner units, cutting standard bricks to fit as required and then fixing as described in section 17.8. Alternatively, windows may be set back approximately 20 mm from the face of the brickwork. On completion the installation should be sealed using a suitable exterior grade sealant to ensure the opening is watertight.

Technical Investigations

The following is a summary of the technical investigations carried out on the Novabrik Mortarless Brick System.

18 Tests

18.1 Tests were carried out to determine:

- effect of heat/spray and freeze/thaw
- resistance to hard and soft body impact damage
- compressive strength
- density
- resistance to wind-driven rain
- resistance to vertical and horizontal loading.

18.2 An examination was made of data relating to:

- resistance to vertical loading
- resistance to wind loading
- resistance to bending
- resistance to water penetration.

19 Investigations

19.1 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of materials used.

19.2 A trial installation was witnessed at the BBA, to examine the practicability of installation and the effectiveness of detailing techniques.

19.3 An assessment of the risk of interstitial condensation was undertaken.

Bibliography

BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*

BS 5268-5 : 1989 *Structural use of timber — Code of practice for the preservative treatment of structural timber*

BS 5589 : 1989 *Code of practice for preservation of timber*

BS 5628-1 : 2005 *Code of practice for the use of masonry — Structural use of unreinforced masonry*

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

BS 5950-5 : 1998 *Structural use of steelwork in building — Code of practice for design of cold formed thin gauge sections*

BS 6399-2 : 1997 *Loading for buildings — Code of practice for wind loads*

BS 8110-1 : 1997 *Structural use of concrete — Code of practice for design and construction*

BS 8110-2 : 1985 *Structural use of concrete — Code of practice for special circumstances*

BS 8200 : 1985 *Code of practice for design of non-loadbearing external vertical enclosures of buildings*

BS EN 351-1 : 1996 *Durability of wood on wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 10326 : 2004 *Continuously hot-dip coated strip and sheet of structural steels. Technical delivery conditions*

BS EN 10327 : 2004 *Continuously hot-dip coated strip and sheet of low carbon steels for cold forming. Technical delivery conditions*

Conditions of Certification

20 Conditions

20.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

20.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

20.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

20.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

20.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, the Novabrik Mortarless Brick System is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 07/4421 is accordingly awarded to Acheson & Glover.

On behalf of the British Board of Agrément

Date of issue: 3rd May 2007

A handwritten signature in black ink, appearing to read 'G. A. Cooper', is written over a light grey background.

Chief Executive

